Abstract ASM

Isolation and Identification of Bacteria from Therapeutic Ball Pits Located in Hospital Settings

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It is known that bacteria can be found on commercial ball pits. Due to ball pits moist, dark, warm environments, bacteria flourish, increasing risk of transmission. No study has been conducted on clinical therapeutic ball pits. These ball pits may be used constantly, yet no protocol exists on sanitization, or its frequency. Infrequent cleanings allow bacteria to reproduce to potentially infectious levels. Risk increases if the individual has lesions, abrasions, or is immunocompromised. An understanding in microbial communities of therapeutic ball pits and proper cleaning protocol was sought.

A study was conducted using six clinical ball pits in Georgia. Sampling consisted of selecting random balls, swabbing five locations (four corners and center), and different strata (depths). Samples were plated on tryptic soy agar (TSA) plates, and incubated for twenty-four hours at 33 °C. Afterwards, microbial colonies were tallied. Colonies were identified using the Biolog GEN III Bacterial Identification System.

Differences were found between clinics and the amount of colony forming units (CFU) from each sample. Clinic B had the least amount of CFU with 36% of balls having less than $3.0x10^1$ CFU, and 7% with greater than $3.0x10^4$ colonies. Clinic D had the largest CFU with 93% of balls having greater than $3.0x10^4$ CFU. Potential opportunistic pathogens identified are *Enterococcus faecalis, Acinetobacter lwoffii, Paoultella terrigena, Psychrobacter immobilis, Paenibacillus xylanilyficus, Klebsiella variicola,* and *Moraxella caprae*. Balls with floor exposure had the most CFU; middle stratum balls had the least CFU; and balls with surface exposure had the second highest CFU.